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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/822,960 | 04/13/2004 | Pey-Yuan Lee | 24061.187 (2003-1398) | 3594 |

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| EXAMINER | |
|---|---|
| HUYNH, ANDY | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2818 | |

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/822,960 | LEE ET AL. | |
| | Examiner | Art Unit | |
| | Andy Huynh | 2818 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,2,4-9 and 23-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-9* is/are allowed.

6)☒ Claim(s) *1,2,4-6 and 23-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

This Office Action is response to the Amendment dated 10/24/2005.

In the Amendment, Claims **3 and 10-22** have been canceled. The title and Claims **1, 2 and 7** have been amended. New Claims **23-25** have been added. Claims **1, 2, 4-9 and 23-25** are pending in the application.

### *Response to Arguments*

Applicant's arguments with respect to Claims **1, 2, 4-9 and 23-25** have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 U.S.C. § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claim **1** is rejected under 35 U.S.C. 102(e) as being anticipated by Somekh et al. (USP 6,900,135 hereinafter referred to as "Somekh").

Somekh discloses in Fig. 1 and the corresponding texts as set forth in column 3, line 40-column 4, line 56, a method of manufacturing a microelectronic device, comprising:

performing a first inspection of a device feature/wafer during an intermediate stage of manufacture;

cleaning the device feature/wafer after the first inspection; and

performing a second inspection of the device feature after cleaning the device feature/wafer, wherein the first and second inspections are performed by a single inspection tool/a buffer station 104 (col. 3, lines 44-45).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim **2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh et al. (USP 6,900,135 hereinafter referred to as "Somekh") in view of Pike (USP 6,410,927).

Somekh discloses all the claimed limitations as stated in Claim **1** except for the first inspection is performed by a first inspection tool and the second inspection is performed by a second inspection tool different than the first inspection tool. Pike teaches that wafers are subject to an initial scan under low magnification using a first inspection tool/an inspection tool and transferred to a second inspection tool/a high magnification analysis tool for more complete analysis in a method for detecting defects in both processed and unprocessed wafers in order to easily find defects when a wafer is transferred from tool to tool as set forth in the Abstract. It

would have been obvious to one having ordinary skill in the art at the time of the invention was made to utilize the teachings of using a first inspection tool/an inspection tool for a first process/an initial scan under low magnification and a second inspection tool for a second process/a high magnification analysis tool, as taught by Pike to incorporate into Somekh's method to arrive the claimed limitation in order to easily find defects when a wafer is transferred from tool to tool.

Claim **4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh et al. (USP 6,900,135 hereinafter referred to as "Somekh") in view of Iwabuchi et al. (USP 6,512,227 hereinafter referred to as "Iwabuchi").

Somekh discloses all the claimed limitations except for at least one of the first and second inspections is performed by a scanning electron microscope (SEM). Iwabuchi teaches that as one of apparatuses for observing a sample with an electron beam, there is known a scanning electron microscope (SEM). The SEM is suitable for observing a by restricted field of vision at a high magnification (col. 1, lines 32-39). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to use at least one of the first and second inspections is performed by a scanning electron microscope (SEM), as taught by Iwabuchi to incorporate into Somekh's method to arrive the claimed limitation since it was known in the art that the SEM is suitable for observing a by restricted field of vision at a high magnification.

Claim **5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh et al. (USP 6,900,135 hereinafter referred to as "Somekh") in view of Branco et al. (USP 6,841,008 hereinafter referred to as "Branco").

Somekh discloses all the claimed limitations except for the cleaning comprises exposing the device feature to an oxygen containing plasma. Branco teaches that plasma cleaning with oxygen as a source gas (also referred to "ashing") can remove organic based materials. At the same time, an oxygen plasma etch can leave quartz surfaces essentially unaltered as set forth in column 4, line 64-column 5, line 1). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use oxygen plasma for cleaning or etching, as taught by Branco since it was known in the art that oxygen plasma can remove organic based materials, and can leave quartz surfaces essentially unaltered.

Claim **6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh et al. (USP 6,900,135 hereinafter referred to as "Somekh") in view of Kim et al. (USP 6,355,516 hereinafter referred to as "Kim").

Somekh discloses all the claimed limitations except for the device feature comprises a first conductive layer located over a substrate, a buffer layer located over the first conductive layer, and a second conductive layer located over the buffer layer. Kim teaches in Fig. 1C that a device feature comprises a first conductive layer 12 located over a substrate 11, a buffer layer 13, 14, 15, 16 located over the first conductive layer, and a second conductive layer 17 located over

the buffer layer (col. 2, line 40-col. 3, line 14). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a device feature comprises a first conductive layer located over a substrate, a buffer layer located over the first conductive layer, and a second conductive layer located over the buffer layer, as taught by Kim in order to form a device feature as a capacitor.

Claim **23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh et al. (USP 6,900,135 hereinafter referred to as "Somekh") in view of Pike (USP 6,410,927) and further in view of Iwabuchi et al. (USP 6,512,227 hereinafter referred to as "Iwabuchi").

Somekh and pike disclose all the claimed limitations except for at least one of the first and second inspections is performed by a scanning electron microscope (SEM). Iwabuchi teaches that as one of apparatuses for observing a sample with an electron beam, there is known a scanning electron microscope (SEM). The SEM is suitable for observing a by restricted field of vision at a high magnification (col. 1, lines 32-39). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to use at least one of the first and second inspections is performed by a scanning electron microscope (SEM), as taught by Iwabuchi to incorporate into Somekh and Pike's method to arrive the claimed limitation since it was known in the art that the SEM is suitable for observing a by restricted field of vision at a high magnification.

Claim **24** is rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh et al. (USP 6,900,135 hereinafter referred to as "Somekh") in view of Pike (USP 6,410,927) and further in view of Branco et al. (USP 6,841,008 hereinafter referred to as "Branco").

Somekh and Pike disclose all the claimed limitations except for the cleaning comprises exposing the device feature to an oxygen containing plasma. Branco teaches that plasma cleaning with oxygen as a source gas (also referred to "ashing") can remove organic based materials. At the same time, an oxygen plasma etch can leave quartz surfaces essentially unaltered as set forth in column 4, line 64-column 5, line 1). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use oxygen plasma for cleaning or etching, as taught by Branco since it was known in the art that oxygen plasma can remove organic based materials, and can leave quartz surfaces essentially unaltered.

Claim **25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh et al. (USP 6,900,135 hereinafter referred to as "Somekh") in view of Pike (USP 6,410,927) and further in view of Kim et al. (USP 6,355,516 hereinafter referred to as "Kim").

Somekh and Pike disclose all the claimed limitations except for the device feature comprises a first conductive layer located over a substrate, a buffer layer located over the first conductive layer, and a second conductive layer located over the buffer layer. Kim teaches in Fig. 1C that a device feature comprises a first conductive layer 12 located over a substrate 11, a buffer layer 13, 14, 15, 16 located over the first conductive layer, and a second conductive layer

17 located over the buffer layer (col. 2, line 40-col. 3, line 14). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a device feature comprises a first conductive layer located over a substrate, a buffer layer located over the first conductive layer, and a second conductive layer located over the buffer layer, as taught by Kim in order to form a device feature as a capacitor.

### *Allowable Subject Matter*

Claims **7-9** are allowed.

### *Conclusion*

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ah

Andy Huynh

Patent Examiner